

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-21 (canceled).

22. (new) A control circuit for controlling a cache system having a store queue for storing at least one store instruction, said control circuit including:

a first comparator circuit comparing, in view of an index and an off-set, an object instruction with tag-retrieval to said at least one store instruction stored in said store queue, and said first comparator circuit outputting a first stall signal for stalling said object instruction with tag-retrieval if said object instruction with tag-retrieval corresponds, in view of said index and said off-set, to at least any one of said at least one store instruction stored in said store queue;

a second comparator circuit comparing, in view of an index and a way, said object instruction with tag-retrieval to said at least one store instruction stored in said store queue, and said second comparator circuit outputting a second stall signal for stalling said object instruction with tag-retrieval if said object instruction with tag-retrieval corresponds, in view

of said index and said way, to at least any one of said at least one store instruction stored in said store queue; and

a controller circuit stalling, in accordance with said first stall signal, said object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said index and said off-set, to said object instruction with tag-retrieval; and

said controller circuit also stalling, in accordance with said second stall signal, said object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said way to said object instruction with tag-retrieval and subsequently said controller circuit replacing a cache.

23. (new) The control circuit as claimed in claim 22, wherein said first comparator circuit does not output said first stall signal if said object instruction with tag-retrieval corresponds, in view of said index only to said at least one store instruction, and said controller circuit does not stall said object instruction with tag-retrieval, and

wherein said second comparator circuit does not output said second stall signal if said object instruction with tag-retrieval corresponds, in view of said index only to said at least one store instruction, and said controller circuit does not

stall said object instruction with tag-retrieval, and does not replace said cache.

24. (new) The control circuit as claimed in claim 22, wherein said first comparator circuit does not output said first stall signal if a subsequent object instruction with tag-retrieval to said object instruction with tag-retrieval corresponds, in view of said index, to at least any one of said at least one store instruction stored in said store queue, and said controller circuit does not stall said object instruction with tag-retrieval,

wherein said second comparator circuit does not output said second stall signal if said subsequent object instruction with tag-retrieval corresponds, in view of said index, to at least any one of said at least one store instruction stored in said store queue, and said controller circuit does not stall said object instruction with tag-retrieval, and does not replace said cache,

wherein said first comparator circuit outputs said first stall signal if a subsequent object instruction with tag-retrieval to said object instruction with tag-retrieval corresponds, in view of index and said off-set, to at least any one of said at least one store instruction stored in said store

queue, and said controller circuit stalls said object instruction with tag-retrieval, and

wherein said second comparator circuit outputs said second stall signal if said subsequent object instruction with tag-retrieval corresponds, in view of said index and said way, to at least any one of said at least one store instruction stored in said store queue, and said controller circuit stalls said object instruction with tag-retrieval, and replaces said cache.

25. (new) The control circuit as claimed in claim 24, wherein said subsequent object instruction with tag-retrieval is a load instruction.

26. (new) The control circuit as claimed in claim 22, wherein said control circuit executes said at least one store instruction in said store queue prior to storing said object instruction with tag-retrieval into said store queue, if said object instruction with tag-retrieval is a store instruction and has a cache-miss and if said object instruction with tag-retrieval corresponds, in view of index and way, to at least any one of said at least one store instruction.

27. (new) The control circuit as claimed in claim 22, wherein said first comparator circuit comprises an index match

detecting unit, and said second comparator circuit comprises a store queue hit detecting unit.

28. (new) The control circuit as claimed in claim 22, wherein said cache system has a data cache structure including plural ways.

29. (new) The control circuit as claimed in claim 22, wherein said first comparator circuit compares, in view of said index and said off-set, a subsequent object instruction with tag-retrieval, which is not of store instruction, to said at least one store instruction stored in said store queue, and said first comparator circuit outputs said first stall signal for stalling said subsequent object instruction with tag-retrieval if said subsequent object instruction with tag-retrieval corresponds, in view of said index and said off-set, to at least any one of said at least one store instruction stored in said store queue;

wherein said second comparator circuit compares, in view of said index and said way, said subsequent object instruction with tag-retrieval to said at least one store instruction stored in said store queue, and said second comparator circuit outputs said second stall signal for stalling said subsequent object instruction with tag-retrieval if said

subsequent object instruction with tag-retrieval corresponds, in view of said index and said way, to at least any one of said at least one store instruction stored in said store queue;

wherein said controller circuit stalls, in accordance with said first stall signal, said subsequent object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said index and said off-set, to said subsequent object instruction with tag-retrieval, and

said controller circuit also stalls, in accordance with said second stall signal, said subsequent object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said way to said subsequent object instruction with tag-retrieval and subsequently said controller circuit replaces said cache.

30. (new) A method of controlling a cache system having a store queue for storing at least one store instruction, said method including:

comparing, in view of an index and off-set, an object instruction with tag-retrieval to said at least one store instruction stored in said store queue;

outputting a first stall signal for stalling said object instruction with tag-retrieval if said object instruction with tag-retrieval corresponds, in view of said index and said

off-set, to at least any one of said at least one store instruction stored in said store queue;

comparing, in view of an index and a way, said object instruction with tag-retrieval to said at least one store instruction stored in said store queue;

outputting a second stall signal for stalling said object instruction with tag-retrieval if said object instruction with tag-retrieval corresponds, in view of said index and said way, to at least any one of said at least one store instruction stored in said store queue;

stalling, in accordance with said first stall signal, said object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said index and said off-set, to said object instruction with tag-retrieval; and

stalling, in accordance with said second stall signal, said object instruction with tag-retrieval and executing said store instruction, which corresponds, in view of said way to said object instruction with tag-retrieval and subsequently replacing a cache.

31. (new) The method as claimed in claim 30,

wherein said first stall signal is not outputted if said object instruction with tag-retrieval corresponds, in view

of said index only to said at least one store instruction, and  
said object instruction with tag-retrieval is not stalled, and

wherein said second stall signal is not outputted if  
said object instruction with tag-retrieval corresponds, in view  
of said index only to said at least one store instruction, and  
said object instruction with tag-retrieval is not stalled, and  
said cache is not replaced.

32. (new) The method as claimed in claim 30,

wherein said first stall signal is not outputted if a  
subsequent object instruction with tag-retrieval to said object  
instruction with tag-retrieval corresponds, in view of said  
index, to at least any one of said at least one store instruction  
stored in said store queue, and said object instruction with tag-  
retrieval is not stalled,

wherein said second stall signal is not outputted if  
said subsequent object instruction with tag-retrieval  
corresponds, in view of said index, to at least any one of said  
at least one store instruction stored in said store queue, and  
said object instruction with tag-retrieval is not stalled, and  
said cache is not replaced,

wherein said first stall signal is outputted if a  
subsequent object instruction with tag-retrieval to said object  
instruction with tag-retrieval corresponds, in view of index and



said off-set, to at least any one of said at least one store instruction stored in said store queue, and said object instruction with tag-retrieval is stalled, and

wherein said second stall signal is outputted if said subsequent object instruction with tag-retrieval corresponds, in view of said index and said way, to at least any one of said at least one store instruction stored in said store queue, and said object instruction with tag-retrieval is stalled, and said cache is replaced.

33. (new) The method as claimed in claim 32, wherein said subsequent object instruction with tag-retrieval is a load instruction.

34. (new) The method as claimed in claim 30, wherein said at least one store instruction in said store queue is executed prior to storing said object instruction with tag-retrieval into said store queue, if said object instruction with tag-retrieval is a store instruction and has a cache-miss and if said object instruction with tag-retrieval corresponds, in view of index and way, to at least any one of said at least one store instruction.

35. (new) The method as claimed in claim 30,

wherein a subsequent object instruction with tag-retrieval, which is not of store instruction, is compared, in view of said index and said off-set, to said at least one store instruction stored in said store queue, and said first stall signal for stalling said subsequent object instruction with tag-retrieval is outputted if said subsequent object instruction with tag-retrieval corresponds, in view of said index and said off-set, to at least any one of said at least one store instruction stored in said store queue;

wherein said subsequent object instruction with tag-retrieval is compared, in view of said index and said way, to said at least one store instruction stored in said store queue, and said second stall signal for stalling said subsequent object instruction with tag-retrieval is outputted if said subsequent object instruction with tag-retrieval corresponds, in view of said index and said way, to at least any one of said at least one store instruction stored in said store queue;

wherein in accordance with said first stall signal, said subsequent object instruction with tag-retrieval is stalled and said store instruction is executed, which corresponds, in view of said index and said off-set, to said subsequent object instruction with tag-retrieval, and

wherein in accordance with said second stall signal, said subsequent object instruction with tag-retrieval is stalled and said store instruction is executed, which corresponds, in view of said way, to said subsequent object instruction with tag-retrieval and subsequently said cache is replaced.